Stericated 6-cubes

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In six-dimensional geometry, a **stericated 6-cube** is a convex uniform 6-polytope, constructed as a sterication (4th order truncation) of the regular 6-cube.

There are 8 unique sterications for the 6-cube with permutations of truncations, cantellations, and runcinations.

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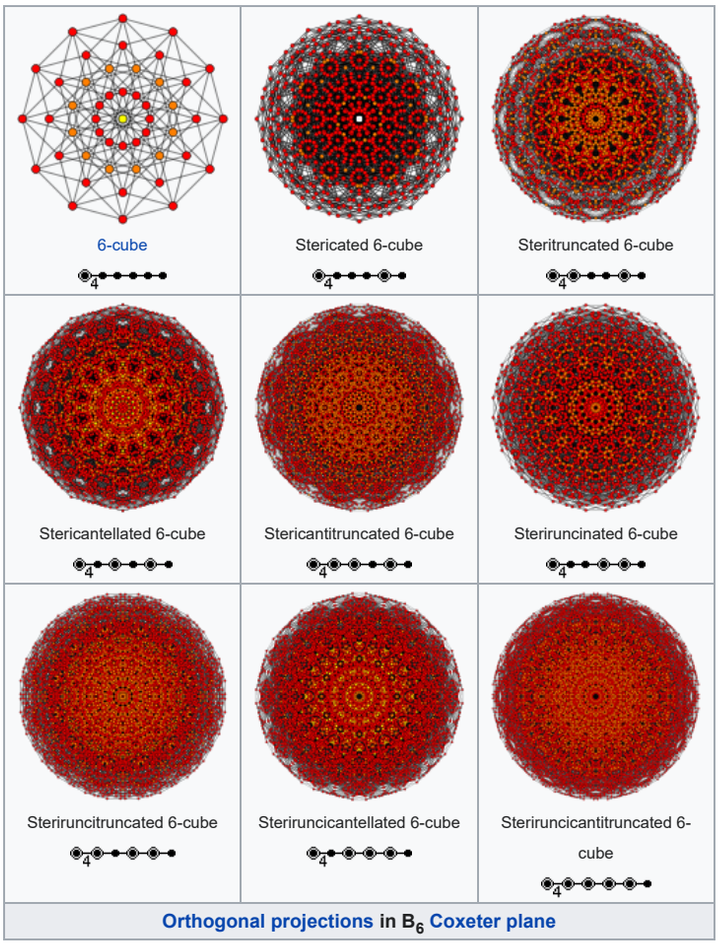


Orthogonal projections in B_6 Coxeter plane

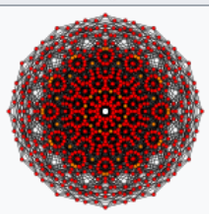
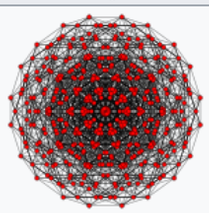
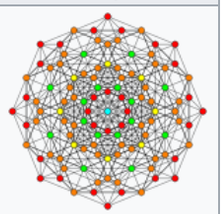
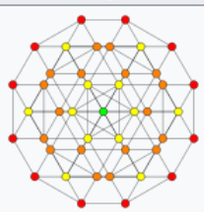
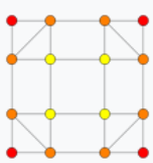
Stericated 6-cube [edit source]

Alternate names [edit source]

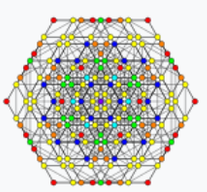
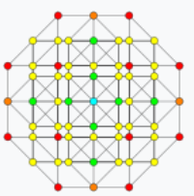
- Small cellated hexeract (Acronym: scox) (Jonathan Bowers)[1]

Images [edit source]

orthographic projections

Coxeter plane	B_6	B_5	B_4
Graph			
Dihedral symmetry	[12]	[10]	[8]
Coxeter plane	B_3	B_2	
Graph			
Dihedral symmetry	[6]	[4]	
Coxeter plane	A_5	A_3	

Stericated 6-cube	
Type	uniform 6-polytope
Schläfli symbol	2r2r{4,3,3,3,3}
Coxeter-Dynkin diagrams	
5-faces	
4-faces	
Cells	
Faces	
Edges	5760
Vertices	960
Vertex figure	
Coxeter groups	B_6, [4,3,3,3,3]
Properties	convex

Graph		
Dihedral symmetry	[6]	[4]

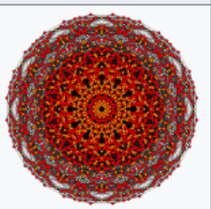
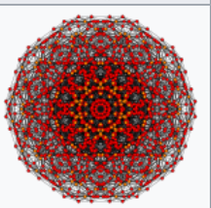
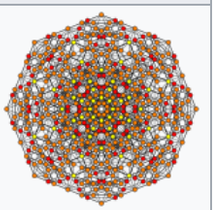
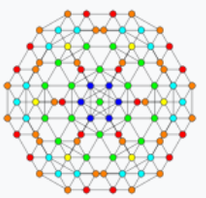
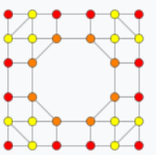
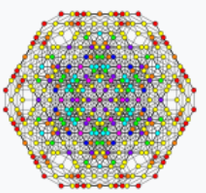
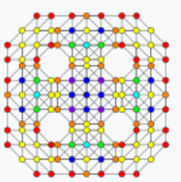
Steritruncated 6-cube [edit source]

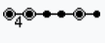
Alternate names [edit source]

- Cellirhombated hexeract (Acronym: catax) (Jonathan Bowers)[2]

Images [edit source]

orthographic projections

Coxeter plane	B_6	B_5	B_4
Graph			
Dihedral symmetry	[12]	[10]	[8]
Coxeter plane	B_3	B_2	
Graph			
Dihedral symmetry	[6]	[4]	
Coxeter plane	A_5	A_3	
Graph			
Dihedral symmetry	[6]	[4]	

Steritruncated 6-cube	
Type	uniform 6-polytope
Schläfli symbol	$t_{0,1,4}\{4,3,3,3,3\}$
Coxeter-Dynkin diagrams	
5-faces	
4-faces	
Cells	
Faces	
Edges	19200
Vertices	3840
Vertex figure	
Coxeter groups	B_6, [4,3,3,3,3]
Properties	convex

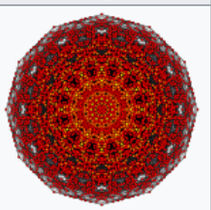
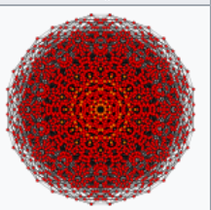
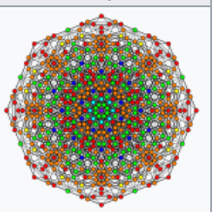
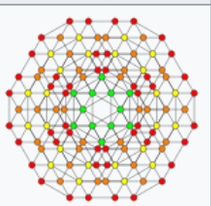
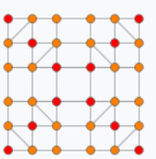
Stericantellated 6-cube [edit source]

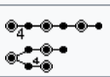
Alternate names [edit source]

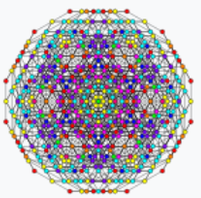
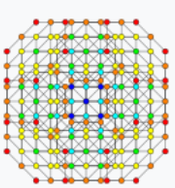
- Cellirhombated hexeract (Acronym: crax) (Jonathan Bowers)[3]

Images [edit source]

orthographic projections

Coxeter plane	B_6	B_5	B_4
Graph			
Dihedral symmetry	[12]	[10]	[8]
Coxeter plane	B_3	B_2	
Graph			
Dihedral symmetry	[6]	[4]	
Coxeter plane	A_5	A_3	

Stericantellated 6-cube	
Type	uniform 6-polytope
Schläfli symbol	2r2r{4,3,3,3,3}
Coxeter-Dynkin diagrams	
5-faces	
4-faces	
Cells	
Faces	
Edges	28800
Vertices	5760
Vertex figure	
Coxeter groups	B_6, [4,3,3,3,3]
Properties	convex

Graph		
Dihedral symmetry	[6]	[4]

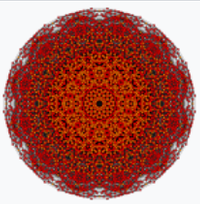
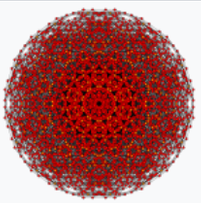
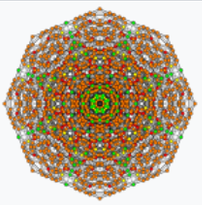
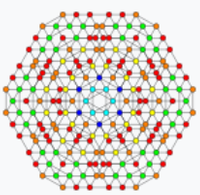
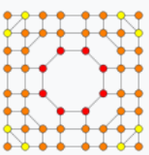
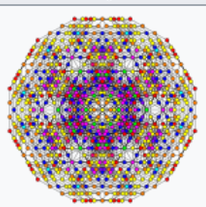
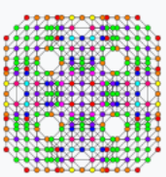
Stericantitruncated 6-cube [edit source]

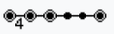
Alternate names [edit source]

- Celligreatorhombated hexeract (Acronym: cagorx) (Jonathan Bowers)[4]

Images [edit source]

orthographic projections

Coxeter plane	B_6	B_5	B_4
Graph			
Dihedral symmetry	[12]	[10]	[8]
Coxeter plane	B_3	B_2	
Graph			
Dihedral symmetry	[6]	[4]	
Coxeter plane	A_5	A_3	
Graph			
Dihedral symmetry	[6]	[4]	

stericantitruncated 6-cube	
Type	uniform 6-polytope
Schläfli symbol	$t_{0,1,2,4}\{4,3,3,3,3\}$
Coxeter-Dynkin diagrams	
5-faces	
4-faces	
Cells	
Faces	
Edges	46080
Vertices	11520
Vertex figure	
Coxeter groups	B_6, [4,3,3,3,3]
Properties	convex

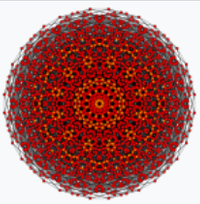
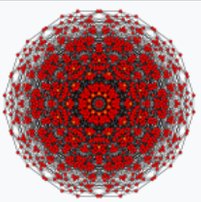
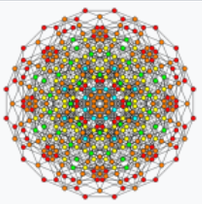
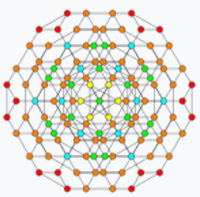
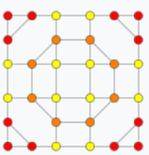
Steriruncinated 6-cube [edit source]

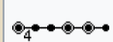
Alternate names [edit source]

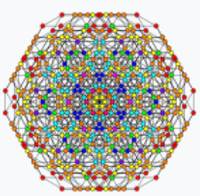
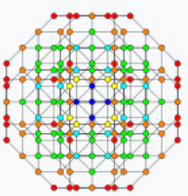
- Celliprismated hexeract (Acronym: copox) (Jonathan Bowers)[5]

Images [edit source]

orthographic projections

Coxeter plane	B_6	B_5	B_4
Graph			
Dihedral symmetry	[12]	[10]	[8]
Coxeter plane	B_3	B_2	
Graph			
Dihedral symmetry	[6]	[4]	
Coxeter plane	A_5	A_3	

steriruncinated 6-cube	
Type	uniform 6-polytope
Schläfli symbol	$t_{0,3,4}\{4,3,3,3,3\}$
Coxeter-Dynkin diagrams	
5-faces	
4-faces	
Cells	
Faces	
Edges	15360
Vertices	3840
Vertex figure	
Coxeter groups	B_6, [4,3,3,3,3]
Properties	convex

Graph		
Dihedral symmetry	[6]	[4]

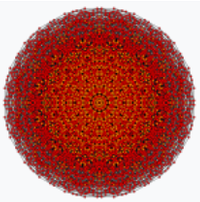
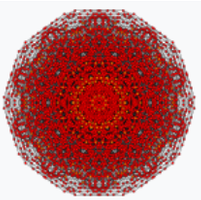
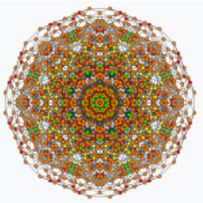
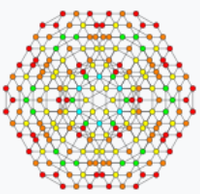
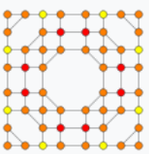
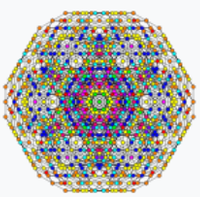
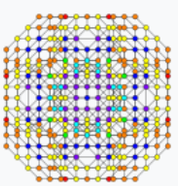
Steriruncitruncated 6-cube [edit source]

Alternate names [edit source]

- Celliprismatotruncated hexeract (Acronym: captix) (Jonathan Bowers)[6]

Images [edit source]

orthographic projections

Coxeter plane	B_6	B_5	B_4
Graph			
Dihedral symmetry	[12]	[10]	[8]
Coxeter plane	B_3	B_2	
Graph			
Dihedral symmetry	[6]	[4]	
Coxeter plane	A_5	A_3	
Graph			
Dihedral symmetry	[6]	[4]	

steriruncitruncated 6-cube	
Type	uniform 6-polytope
Schläfli symbol	2t2r{4,3,3,3,3}
Coxeter-Dynkin diagrams	
5-faces	
4-faces	
Cells	
Faces	
Edges	40320
Vertices	11520
Vertex figure	
Coxeter groups	B_6, [4,3,3,3,3]
Properties	convex

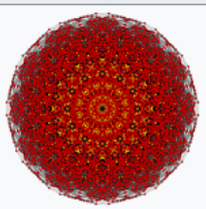
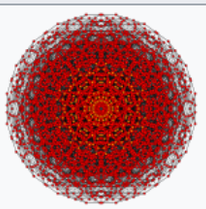
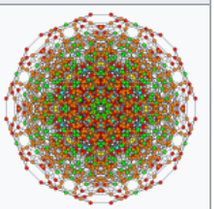
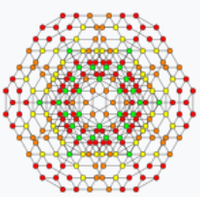
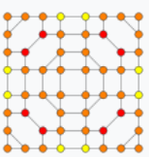
Steriruncicantellated 6-cube [edit source]

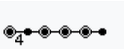
Alternate names [edit source]

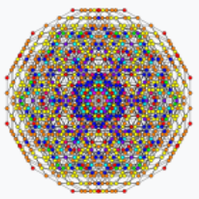
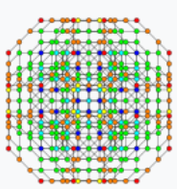
- Celliprismatorhombated hexeract (Acronym: coprix) (Jonathan Bowers)[7]

Images [edit source]

orthographic projections

Coxeter plane	B_6	B_5	B_4
Graph			
Dihedral symmetry	[12]	[10]	[8]
Coxeter plane	B_3	B_2	
Graph			
Dihedral symmetry	[6]	[4]	
Coxeter plane	A_5	A_3	

steriruncicantellated 6-cube	
Type	uniform 6-polytope
Schläfli symbol	$t_{0,2,3,4}$\{4,3,3,3,3\}
Coxeter-Dynkin diagrams	
5-faces	
4-faces	
Cells	
Faces	
Edges	40320
Vertices	11520
Vertex figure	
Coxeter groups	B_6, [4,3,3,3,3]
Properties	convex

Graph		
Dihedral symmetry	[6]	[4]

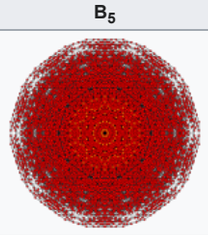
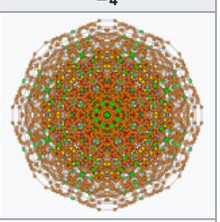
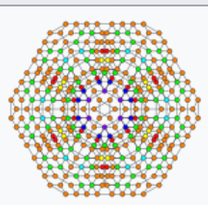
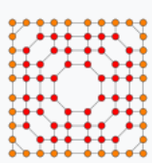
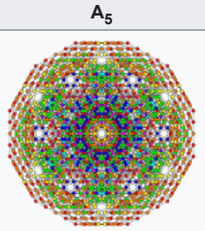
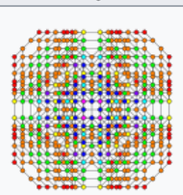
Steriruncicantitruncated 6-cube [edit source]

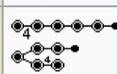
Alternate names [edit source]

- Great cellated hexeract (Acronym: gocax) (Jonathan Bowers)[8]

Images [edit source]

orthographic projections

Coxeter plane	B_6	B_5	B_4
Graph			
Dihedral symmetry	[12]	[10]	[8]
Coxeter plane	B_3	B_2	
Graph			
Dihedral symmetry	[6]	[4]	
Coxeter plane	A_5	A_3	
Graph			
Dihedral symmetry	[6]	[4]	

Steriuncicantitruncated 6-cube	
Type	uniform 6-polytope
Schläfli symbol	tr2r{4,3,3,3,3}
Coxeter-Dynkin diagrams	
5-faces	
4-faces	
Cells	
Faces	
Edges	69120
Vertices	23040
Vertex figure	
Coxeter groups	B_6, [4,3,3,3,3]
Properties	convex

Related polytopes [edit source]

These polytopes are from a set of 63 uniform 6-polytopes generated from the B_6 Coxeter plane, including the regular 6-cube or 6-orthoplex.

B6 polytopes [show]

Notes [edit source]

1. ^ Klitzing, (x4o3o3o3x3o - scox)
2. ^ Klitzing, (x4x3o3o3x3o - catax)
3. ^ Klitzing, (x4o3x3o3x3o - crax)
4. ^ Klitzing, (x4x3x3o3x3o - cagorx)
5. ^ Klitzing, (x4o3o3x3x3o - copox))
6. ^ Klitzing, (x4x3o3x3x3o - captix)
7. ^ Klitzing, (x4o3x3x3x3o - coprix)
8. ^ Klitzing, (x4x3x3x3x3o - gocax)

References [edit source]

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    - (Paper 22) H.S.M. Coxeter, *Regular and Semi Regular Polytopes I*, [Math. Zeit. 46 (1940) 380-407, MR 2,10]
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External links [edit source]

- Polytopes of Various Dimensions
- Multi-dimensional Glossary

v · t · e	Fundamental convex regular and uniform polytopes in dimensions 2–10				[hide]
Family	A_n	B_n	$I_2(p)$ / D_n	E_6 / E_7 / E_8 / F_4 / G_2	H_n
Regular polygon	Triangle	Square	p-gon	Hexagon	Pentagon
Uniform polyhedron	Tetrahedron	Octahedron • Cube	Demicube		Dodecahedron • Icosahedron
Uniform polychoron	Pentachoron	16-cell • Tesseract	Demitesseract	24-cell	120-cell • 600-cell
Uniform 5-polytope	5-simplex	5-orthoplex • 5-cube	5-demicube		
Uniform 6-polytope	6-simplex	6-orthoplex • 6-cube	6-demicube	1_{22} • 2_{21}	
Uniform 7-polytope	7-simplex	7-orthoplex • 7-cube	7-demicube	1_{32} • 2_{31} • 3_{21}	
Uniform 8-polytope	8-simplex	8-orthoplex • 8-cube	8-demicube	1_{42} • 2_{41} • 4_{21}	
Uniform 9-polytope	9-simplex	9-orthoplex • 9-cube	9-demicube		
Uniform 10-polytope	10-simplex	10-orthoplex • 10-cube	10-demicube		
Uniform *n*-polytope	*n*-simplex	*n*-orthoplex • *n*-cube	*n*-demicube	1_{k2} • 2_{k1} • k_{21}	*n*-pentagonal polytope
Topics: Polytope families • Regular polytope • List of regular polytopes and compounds					

Categories: 6-polytopes

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